Monte Carlo mini-App Prerequisites



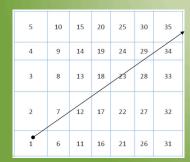
An MC transport application requires a variety of information, including:

A good random-number generator

 A parallel-capable random-number kernel will be needed that provides a predictable, independent random number sequence to an arbitrary number of processes. The method(s) used in MCNP6 will be recast as needed.

Initial conditions for a radiation source

- A user-defined external source (e.g., radiography)
- An initial guess at an internal source (e.g., criticality)



A description of the transport "universe"

· Cartesian, Cylindrical or Spherical axes specified as lists of intercepts

Compositional Information

- The materials are separately defined and stored
- The isotopics will remain fixed during the calculation

Interaction cross-section data

• Mean free path
$$\lambda$$
 as a function of radiation type, energy, and material

• For creation of secondary packets, double-differential cross-section data may be required for some isotopes and reactions channels

